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TO: Natural Resources Board

FROM: Scott Hassett – AD/5

SUBJECT: Recommendation for Adoption of the Ch. NR 445 Rule Revision Package

## **1. Why is the revised rule being proposed?**

These rule revisions are being proposed to update 1) the list of regulated hazardous air contaminants, 2) emission threshold levels, and 3) emission standards. This is the first comprehensive update to NR 445 since its adoption in 1988. The revised rule is also being proposed to improve the regulatory system by making it easier to understand, reducing the regulatory burden and providing alternative methods for demonstrating compliance.

The development of the draft rule revisions included an extensive stakeholder involvement process spanning a 30-month period and involving over 40 regular participants at Technical Advisory Group (TAG) meetings. It also included numerous other meetings on specific issues and presentations. These efforts resulted in substantive contributions to the rule revisions. Through this process, new approaches were suggested and proposals were substantially refined.

Following the public comment period, Department staff continued to meet with stakeholders to resolve a number of issues that were raised in the public comments. The two major areas of discussion were the regulation of coal dust emissions and of emissions from diesel generators.

### ***Updating the Rule to Reflect Current Scientific Knowledge***

Ch. NR 445 was adopted in 1988 and established emission limitations for hazardous air pollutants. It was built on the recommendations of the Hazardous Emissions Task Force, which defined hazardous air contaminants, recommended a methodology for identifying substances to be included in NR 445 and recommended a methodology for establishing emission limitations. The regulatory approach adopted in NR 445 was to set emission standards for each hazardous air contaminant that is emitted from a facility. These standards are set to protect public health from inhalation exposure to the substance. By setting these standards, the objective of NR 445 is to prevent people from being exposed to hazardous air contaminants at levels that are a threat to public health.

The list of regulated substances and emission thresholds and standards in the current NR 445 are based on the scientific knowledge of the mid-1980s. With the understanding that knowledge continues to advance, the rule directed the Department to monitor changes in the classifications of hazardous air contaminants and to modify the rule to incorporate these changes. This is the first comprehensive update to NR 445 since its adoption 15 years ago.

Today, industry uses approximately 80,000 individual chemicals. About 2800 are considered high production volume (HPV) chemicals, with over 1 million pounds used each year. Information on the health effects of these 2800 HPV chemicals is sparse. Partial data is available for 50% of the chemicals. Very little, if any, data is available for 43% of the chemicals. In fact, the U.S. Environmental Protection Agency estimates that the health effects are known for only about 7% of the 2800 HPV chemicals.

As scientific and medical knowledge advances, more of these chemicals are found to be harmful to human health. The Department, in consultation with the Department of Health and Family Services, reviewed the most current findings of the International Agency for Research on Cancer, the National Toxicology Program, and the American Conference of Government Industrial Hygienists. The Department then applied decision criteria to the substances identified as having cancer and non-cancer health effects by these agencies to determine whether to classify a substance as a hazardous air contaminant and whether to regulate it under NR 445. As a result of this process, the Department made the determination to add 144 hazardous air contaminants to the tables in NR 445 and to remove 5 carcinogens from the tables.

Since the mid-1980s, toxicologists have discovered that many of the substances currently listed in NR 445 are more harmful to human health than they first thought. The rule revision proposes to significantly lower the emission standards for 125 acute non-carcinogenic hazardous air contaminants and for 5 carcinogens currently listed in NR 445. Less restrictive emission standards are proposed for 86 of the currently listed acute non-carcinogenic air contaminants.

Toxicologists are learning more about the risk factors associated with carcinogens. In the current rule, most threshold levels for carcinogens are based on whether the substance is classified as a known or probable carcinogenic hazardous air contaminant. This classification has no relationship to the substance's potency and resulting public health risk. The rule revision proposes to set risk-based threshold levels for carcinogens.

The proposed additions of hazardous air contaminants to the rule and the revisions to the emission thresholds and standards will provide greater assurance that public health will be protected in Wisconsin.

### ***Revising the Rule to Streamline the Regulatory Process***

Fifteen years of experience implementing NR 445 illustrated numerous opportunities to streamline the regulatory process. These included making the rule easier to understand and providing more flexibility in meeting the emission standards. The revisions to the list of regulated substances added impetus to incorporating innovative regulatory approaches to minimize the impact on facilities.

The existing rule is hard to follow. The revised rule eliminates out-dated provisions, consolidates the tables of regulated substances, adds emission standards to the tables, eliminates redundant language and structures the rule in a more straightforward manner.

The existing rule offers little flexibility to facilities with emissions of carcinogens. In some cases this leads to analytical and administrative work that results in minimal, if any, public health benefit. The revised rule offers several alternative approaches to substantially reduce the administrative burden, decrease the compliance costs and provide better public health protection.

The revised rule reduces the regulatory burden at every phase of the regulatory process. It streamlines the process for determining whether emissions exceed the regulatory threshold, offers less burdensome compliance demonstration options and avoids the need to revise existing permits for most sources.

In addition to benefiting the regulated community, these proposed revisions should lead to improved regulatory compliance and better public health protection.

## **2. Summary of the revised rule**

Several changes have been made to the draft rule in response to public comments, but much of the draft rule has not changed. This summary of the revised rule lists the major elements of the draft rule that have not been changed, followed by a discussion of the more significant revisions to the draft rule package. A discussion of the rationale for the changes is found in the **Response to Public Comments, Attachment 2**.

### ***Elements in the draft rule package that have not been changed***

The revised rule package, as proposed for adoption, retains the following major elements of the draft rule that went out for public comment:

- The updates to the list of regulated substances and the emission standards in NR 445
- The revisions to emission inventory and permitting requirements to reflect the changes to the list of regulated substances and emission standards.
- The health-based emission thresholds for carcinogens.
- The four stack height categories for emission threshold levels.
- New options for demonstrating compliance for sources emitting carcinogenic substances, including:
  - The use of product substitution or operational controls to limit emissions below threshold rates.
  - Air dispersion modeling to show that public exposure is less than a 1 in a million risk for an individual carcinogen or less than 1 in 100,000 risk for all carcinogens emitted by the facility.
  - Any combination of the above.
- The definition of due diligence and the establishment of a “safe harbor” for sources exercising due diligence.
- The “incidental emitter” concept that narrows the regulatory scope of the rule for sources with little or no emissions.
- The “backstop” language that clearly authorizes the Department to require corrective action in a timely manner if it is later determined that either an incidental emitter or a facility exercising due diligence has emissions that exceed threshold levels.
- The special studies of emissions of silica and wood dust and the requirement to submit a progress report within two years.
- The process for future updates to NR 445.
- The clarification of the relationship between the state and federal hazardous air pollutant programs and the deletion of current NR 445 language that results in overlap between the two.
- The consolidated hazardous air pollutant tables. The pollutants and their emission thresholds, standards, and compliance time periods are listed on one of three tables. Table A applies to all sources

of hazardous air contaminants. Table B applies only to sources that manufacture or treat pesticides, rodenticides, insecticides, herbicides or fungicides. Table C applies only to sources that manufacture or treat pharmaceuticals.

- The use of air dispersion models to demonstrate compliance.
- The restructuring of the rule to allow readers to better understand the requirements.
- The option for self-certification of compliance with NR 445 requirements, except for sources of carcinogens that need to comply with control technology requirements.

## ***Revisions made to the draft rule package***

The revised rule includes several changes to the draft rule in response to public comments. The most significant of these changes are described here. Less significant changes are described in the **Response to Public Comments (Attachment 2)**.

### **Diesel Engines**

Under the revised rule, diesel particulate exhaust is removed from Table A, including its Reference Concentration emission standard. The NR 445 section related to control requirements for stationary compression ignition internal combustion (CI) engines has been revised. Owners or operators of CI engines will need to combust low sulfur fuel no later than July 2006, instead of within 6 months of the effective date of the rule revision. Engines that remain or intend to remain at the same location for 12 consecutive months or more and burn 10,000 gallons/year or more will need to control their emissions. Under the draft rule, emissions needed to be controlled if (a) the engine either remained at the same location for 12 months (no change) or operated at a seasonal source for two years (deleted in revised rule) and (b) the engine, or an aggregation of engines, at that location burned 40,000 gallons/year or more (replaced in revised rule with a single engine that burned 10,000 gallons per year).

The revised rule is modified to allow for increased ability to comply by using certified control devices as an alternative to Best Available Control Technology Requirements. In addition, the compliance schedule is simplified. The requirement to meet Best Available Control Technology for engine test facilities burning over 40,000 gallons per year is not changed.

### **Coal Dust**

Under the revised rule, coal dust is not listed in Table A and the ambient air concentration standard and compliance demonstration options are deleted. Instead, the revised rule creates a new section in NR 445, s. NR 445.10, that establishes control and compliance requirements for sources that handle or store more than 1000 tons of coal in a year. Facilities that have sources of outdoor fugitive coal dust emissions are required to have the ability to control, in a timely manner, emissions from these sources. They are also required to develop and implement a management plan. At a minimum, the plan must identify all sources of outdoor fugitive coal dust emissions and describe the measures that can be taken to control emissions from these sources under routine operations, periods of high activity, periods of increased probability of emissions, and during equipment malfunctions. Outdoor fugitive emissions can occur during the loading and unloading of coal, when coal is moved from one location to another on the property, and on windy days from coal storage piles, among other situations.

Facilities that have sources of non-fugitive coal dust emissions that are exhausted to the outdoor air through a fabric filter are required to meet an emission standard. They can chose to limit visible

emissions from each source to 10% opacity. Or, they may demonstrate, through air dispersion modeling, that the respirable coal dust emissions from all of these sources do not exceed the ambient air concentration standard of 21.6 ug/m<sup>3</sup>. Examples of where sources of non-fugitive coal dust emissions can be found are at transfer points and rail car dumping stations.

### **Silica and Wood Dust**

Silica and wood dust are removed from Table A and from the list of exempt emissions. This change has no regulatory impact on sources. The special studies requirements are not changed.

### **Environmental Management Systems**

The pilot testing of environmental management systems as a compliance reporting option for the iron foundry industry is deleted. The EMS project team related to foundries found that the revised rule, as proposed, was sufficient to meet their needs and did not need to be complicated with this option.

### **Incinerators**

Language is added to the revised rule to allow incinerators to comply with the control requirements for carcinogens by demonstrating, through a multi-pathway risk screening analysis, that the cumulative impact of emissions from the facility does not exceed a 1 in 100,000-risk level over a lifetime. The multi-pathway risk screening analysis assesses all routes of exposure, primarily inhalation and ingestion. Under the draft rule, incinerators did not have this option. Instead, they had to meet the Lowest Achievable Emission Rate (LAER) control technology standard or request a variance.

### **Glass Wool**

Glass wool is removed from Table A and is not regulated under NR 445.

### **Safe Harbor**

Two provisions are added to the safe harbor language. The first is a prompt disclosure requirement. It requires a facility to notify the Department within fourteen days if a hazardous air pollutant not previously identified through due diligence is later found to be emitted from the facility at levels exceeding threshold levels. Under the second provision, the Department retains the authority to require the owner or operator to achieve compliance with applicable requirements in less than 90 days whenever compliance is feasible and necessary to protect public health and the environment.

### **Incidental Emitters**

Two substances are added to the list of Chemicals of Concern, Table E. These are chromium VI, or hexavalent chromium (2 listings) and nitric acid. Sources that are “incidental emitters” and emit these substances over threshold levels will need to achieve compliance with the applicable regulations related to these substances.

### **Variances**

The 18-month deadline for existing sources to submit a LAER variance request is removed.

### **The Tables of Hazardous Air Contaminants**

The Department revised tables A, B, C, and E in NR 445 and the related tables in 407 and 438 following submission of the draft rule. A list of the specific changes by table is available in Attachment 9. Most of the changes are of a technical nature. Chemical names, CAS numbers, and footnotes were checked and are modified as necessary to ensure consistency between tables. Several incorrect thresholds are

corrected. Two chemicals (3 listings) are added to Table E. In addition, several substances are removed from Table A and the related tables in NR 407 and 438, for the following reasons:

- Reassessment of the health effects of some chemicals (e.g., the carcinogenicity of glass wool)
- Utilization of alternative regulatory approaches to managing exposures to hazardous air contaminants (e.g., diesel exhaust and coal dust)
- Special studies (e.g., silica and wood dust)

### **3. How does this proposal affect existing policy?**

The proposed rule revisions are not a major departure from existing policy, which is to protect public health and welfare from inhalation exposure to hazardous air pollutants that are emitted by stationary sources. The proposed revisions do not change any of the basic policies that form the framework for NR 445. However, they do introduce some new concepts and more clearly articulate some of the existing policies.

The rule revisions maintain the public policy foundation of NR 445.

- The objective continues to be preventing future problems from occurring rather than correcting them “after the fact”.
- The focus continues to be on inhalation exposure only and is not expanded to include other exposure pathways.
- The regulatory target continues to be ensuring that emissions from each individual facility meet the emissions standards at the property line; the cumulative impact of emissions from multiple facilities is not regulated.
- The methodology for setting emission standards is not changed. The standards are still expressed as ambient air concentration standards for both the acute and chronic non-carcinogenic air contaminants and as control technology requirements for the carcinogenic air contaminants.

Policies that are more clearly articulated in the revised rule include:

- The two-step process for determining whether or not to regulate a substance as a hazardous air contaminant under NR 445.
- The interaction between NR 445 and the federal hazardous air pollutant program under Section 112 of the Clean Air Act.

Concepts that were introduced in the draft rule and remain in the revised rule include:

- Setting risk-based threshold levels for carcinogens (but not changing emission standards).
- Including risk-based compliance demonstration alternatives to the technology-based compliance requirement for emissions of carcinogens.
- Establishing an abbreviated regulatory process for sources that are expected to have minimal, if any, emissions of hazardous air contaminants.
- Introducing the concepts of due diligence and safe harbor protection to clarify expectations and responsibilities for the identification and quantification of NR 445 substances.
- Allowing facilities to self-certify their compliance with NR 445 requirements rather than re-opening operation permits or obtaining construction permits (except for BACT/LAER compliance).

- Setting control requirements, or performance standards, for compression ignition internal combustion engines combusting fuel oil (i.e., diesel generators).

New concepts that are introduced in the rule revision and were not included in the draft rule include:

- Providing incinerators with the option of conducting a multi-pathway risk screening analysis to demonstrate compliance.
- Setting control requirements, or performance standards, for sources that handle or store coal.

## 4. Hearing Synopsis

### *Hearings Held and Public Comments Received*

Five public hearings were held during August 2002. (See the **Hearing Examiner's Report, Attachment 1**, for more details.)

NR 445 Public Hearings			
Date	Location	Attendance	Appearances
August 19	Appleton	5 in attendance	1 – “as interests may appear” 1 – “in opposition” 3 - blank No one presented comments
August 20	Wisconsin Rapids	2 in attendance	2 – “in support” 2 presented oral comments
August 22	La Crosse	2 in attendance	2 – “as interests may appear” 1 presented oral comments
August 26	Madison	16 in attendance	6 – “as interests may appear” 5 – “in opposition” 1 – “some support/some opposition” 2 – blank 2 – no appearance slip 3 presented oral comments
August 27	Milwaukee	4 in attendance	3 – “as interests may appear” 1 – blank 1 presented oral comments

The Department received written comments from 32 companies, trade associations, public health agencies, and environmental and civic organizations, and over 1000 letters or e-mails from citizens representing 175 communities in Wisconsin. Several commenters incorporated by reference the comments that they had submitted to the Department as part of the earlier Technical Advisory Group process.

## *Summary of Public Comments*

Most commenters said they appreciated the open and deliberative rule making process and the effort made by Department staff to resolve issues. Because of this process, they supported many of the provisions in the draft rule package. However, some commenters noted that they had remaining concerns about rule package. Most of these issues were discussed by the Technical Advisory Group over a period of months during the rule-making process.

One of the major changes in the regulation that was supported by all commenters was the establishment of risk-based threshold levels for carcinogens and the resulting ability to offer facilities more flexibility in determining how to manage their operations so as not to exceed the risk levels. Under the current regulation, sources of carcinogens have no option other than meeting the control technology requirements. Citizens, public health officials, environmentalists, and industry all supported this policy direction. However, the risk levels at which thresholds are set continued to be a point of disagreement.

There was also widespread support for most of the streamlining measures that reduced administrative work, provided additional flexibility and focused efforts on environmentally significant sources. These measures included:

- additional threshold levels for different stack heights
- modeling options for demonstrating compliance
- streamlined format for the tables and the separate table for pharmaceuticals
- compliance certification as an alternative to revising or obtaining permits
- definition of due diligence

Two areas of considerable disagreement among the commenters were the “safe harbor” and “incidental emitters” provisions. Citizens, environmental organizations, and civic groups commented that these two provisions provided industry with a loophole that allowed polluters to escape legal accountability. Industry was supportive of the “safe harbor” and “incidental emitters” provisions as ways to protect public health while reducing regulatory requirements that result in minimal environmental benefits.

There were numerous comments that the rule was either too broad or too narrow. Many industries commented that the reliance on third party lists to identify hazardous air pollutants results in too many substances being regulated without knowing if there is a threat to public health or the environment in Wisconsin. Despite the streamlining measures in the rule, which they support, the sheer number of regulated substances results in administrative costs that industrial representatives believe are significant and without measurable environmental benefit. Furthermore, in their opinion, the process for future updates to NR 445 will lead to its continual expansion as more substances are added to these third-party lists.

Citizens, environmental organizations, civic groups, and public health officials supported the revisions to the list of regulated substances but noted that the revisions did not go far enough to protect public health and the environment. They thought the regulations ignore the cumulative impact of emissions from multiple sources and the exposure to persistent bioaccumulative hazardous air pollutants through ingestion, inhalation and other pathways. In their opinion, NR 445 also fails to regulate known or suspected carcinogens that are listed by either the International Agency for Research on Cancer of the National Toxicology Program, but not listed by both organizations.

There was general support for the special studies for silica and wood dust. However, industry representatives commented that these substances should not be listed in Table A of NR 445. Some environmental groups argued that the outcome of two years of study should be regulatory recommendations not a progress report.

The two specific regulatory proposals that generated the most comments were the proposed regulations for coal dust and diesel generators. Environmental groups and public health officials supported the regulation of coal dust and diesel generators.

On the issue of coal dust, industry representatives' comments questioned whether coal dust should be listed and regulated in NR 445. They thought that the Ch. NR 415 requirements, related to the control of particulate matter, were adequate. Several commented that if additional regulations were necessary they should follow a "best management practice" approach. They also raised specific issues regarding the draft compliance options.

Comments from industry on the diesel generator proposal questioned the need for state regulations in light of future federal regulations and the Clean Air Act's regulatory preemption of non-road engines. They were also concerned about implementation issues related to the fuel requirements and the control requirements.

A separate **Response to Public Comments (Attachment 2)** provides a detailed response to comments on an issue-by-issue basis and is more inclusive in terms of issues addressed.

### ***Public Contacts after Hearings and Comment Period.***

A list of the meetings and presentations that were held following the public comment period is included as **Attachment 7**.

#### **Diesel Generators**

The public comments raised a number of implementation issues that had not been identified earlier. Department staff continued to meet with stakeholders regarding these issues after the close of the public comment period. Meeting participants included representatives from the transportation builders, engine manufacturers and distributors, aggregate producers and environmental groups. Comments included:

- Potential tax consequences of using on-road fuel
- Threshold levels for emission control requirements
- Complexity of keeping track of aggregated fuel use across all engines used at a single location
- Technical feasibility for older engines to meet proposed emission standards
- Regulatory burden associated with BACT standard for new engines
- Need for flexibility in maintenance and repair situations
- Clarification on issues related to definitions and process
  - Seasonal source
  - Modified engine
  - Third party certification

Department staff met numerous times with affected stakeholders regarding the proposal to control particulate emissions from the combustion of diesel fuel oil in compression ignition internal combustion engines. These discussions helped clarify issues and provided Department staff with a better understanding of how the proposal impacted portable sources. This helped Department staff explore options to simplify requirements and reduce the anticipated administrative responsibilities. Information gathered during these meetings was considered when developing the modifications to the proposal. Additional details on specific issues discussed at the meetings and how they factored into the development of the revised rule can found in the **Response to Public Comments (Attachment 2)**.

### **Coal Dust**

Department staff continued to meet with affected stakeholders regarding the control of coal dust emissions. Participants at the meetings included representatives from the utilities, the paper industry, coal distributors, the Wisconsin Department of Administration, state and local public health officials, and environmental groups. The first meeting was held in August 2002, prior to the close of the public comment period. At this meeting, Department staff presented draft guidance for the three compliance options included in the draft rule package. In their written public comments, the stakeholders commented that the compliance demonstration options included in the draft rule had significant implementation problems. Several suggested that an alternative would be best management practices, preferably as a revision to NR 415, the regulations governing the control of particulate matter.

Utility representatives presented Department staff with an overview of their current coal management practices. Staff also met with environmental groups to discuss the alternative approach of best management practices. In December 2002, a second broad stakeholder meeting was held in which the Department presented a draft concept for a best management practice approach within NR 415 and asked stakeholders to submit written comments on the proposal. The overall tone of the comments was that stakeholders supported the alternative approach but had concerns about specific elements of the proposal.

After reviewing stakeholder comments and consulting with DNR field staff and attorneys, the Department held a third stakeholder meeting in early March 2003 at which it presented a revised proposal. The revised proposal included removing coal dust from Table A in NR 445 and creating a new section within NR 445 that would include a minimum performance requirement for sources that handle or store coal. It also directed the Department to develop additional recommendations within a year. The Department requested that stakeholders provide additional feedback after the meeting.

The Department considered all the input received. Department staff also met several times following the March 2003 meeting with the Wisconsin Paper Council, who expressed a strong interest in resolving the issue. The March 2003 proposal was revised to include minimum management plan requirements for outdoor fugitive sources and emission standards for non-fugitive sources. The revised rule does not direct the Department to develop additional recommendations for the control of coal dust emissions.

### **Incinerators**

Department staff were contacted by Xcel Energy to discuss their written comment that incinerators should have the option of demonstrating compliance with the emission standards through modeling. The draft rule did not change the compliance requirement for incinerators, which was to meet the LAER control technology requirement or request a variance. During the meeting, Xcel and the Department developed an alternative proposal that allowed incinerators to demonstrate compliance with NR 445 through a multipathway risk screening analysis. This is an air dispersion and health effects risk screening analysis

that assesses the risks from multiple routes of exposure, including inhalation and ingestion, from the release of hazardous air contaminants to the environment.

This proposal would provide the facility with the ability to demonstrate compliance, rather than seek a variance, and would provide the facility with a clear objective to meet. It also addressed the Department's concern that the Department retain the ability to assess the cumulative impact of emissions from incinerators from both an inhalation and an ingestion perspective. This type of analysis was recently conducted as part of a LAER variance requested by another incinerator. The Department's other concern, that there be a public hearing, was addressed through the public notice requirement in the permitting process. This proposal was discussed at a subsequent meeting among environmental groups, Xcel Energy and Department staff.

### **Accidental Spills**

In response to a public comment from Wisconsin Manufacturers and Commerce (WMC), Department staff drafted a proposed note to NR 445 clarifying the spills reporting requirements under ch. NR 706. Because the issue of accidental spills had raised a high level of interest among stakeholders during the rulemaking process, the Department sent the draft note to stakeholders for comment. It was revised slightly as a result of comments.

### **Modeling assumptions used in setting emission threshold levels**

At their request, Department staff met with WMC to discuss the modeling assumptions the Department used to set emission thresholds, particularly as they related to the carcinogens. No changes to the rule were made as a result of this discussion.

### **Relationship between NR 445 and the Federal Section 112 Standards**

At their request, Department staff met with Wisconsin Paper Council (WPC) representatives and clarified, through specific examples, the relationship between the federal and state programs. Department staff and WPC agreed that it would be beneficial to document the results of the meeting to promote a clear understanding and consistent interpretation of the interrelationship by all industry sources and all Department staff. It was agreed that this document would be included as part of the official record submitted to the Natural Resources Board for rule adoption.

## **5. Information on Environmental Analysis**

The proposed rule revisions were reviewed under Wisconsin Environmental Policy Act. It has been determined that this is a Type III action under NR 150.03(6)(b), Wis. Adm. Code. The revisions are an update to an existing rule and the only anticipated environmental effects are the reduction of toxic releases to the environment. This Type III action requires notification under NR 150.02(1)(b), but does not require other WEPA related notification.

## **6. Final Regulatory Flexibility Analysis**

The proposed rule revisions will have an impact on small businesses. Please see **Final Regulatory Flexibility Analysis, Attachment 3**.